



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,259	10/21/2003	Charles L. Compton	CCCI 0110 PUS	3418
50764	7590	11/15/2006	EXAMINER	
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			NGUYEN, STEVEN H D	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/690,259

Applicant(s)

COMPTON ET AL.

Examiner

Steven HD Nguyen

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-21, 23-38, 41-49 and 51-56 is/are rejected.
- 7) ☒ Claim(s) 11, 12, 22, 39, 40 and 50 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 21 and 49 rejected under 35 U.S.C. 102(e) as being anticipated by Thomas (USP 20030086140).

Regarding claims 21 and 49, Thomas teaches a method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a first and second token buckets associated with a subscriber, the first token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the second token bucket being configured to receive new tokens at a second fill rate and having a second bucket depth (Page 14, Sec 163, a first token bucket has length and fills tokens at 9 Mbs and the second token bucket has a length and fills at token at 6 Mbs) the method comprising handling packets that arrive at the regulator in accordance with the first and second token bucket configurations, wherein the first token bucket uses tokens to regulate the packet flow in terms of packet rate and wherein the second token bucket uses tokens to regulate the packet flow in terms of data rate such that a particular packet is subjected to handling in accordance with both the first token bucket and the second token bucket (Page 9, Sec 95).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 9-10, 13, 29-32, 37-38 and 41 rejected under 35 U.S.C. 103(a) as being unpatentable over Fichou in view of Bashandy (USP 6950395).

Regarding claims 1 and 29, Fichou teaches a method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth (Fig 3, Ref 30 is a regular device includes a plurality of buckets, each bucket which is associated with a data source "subscriber", configured to receive token at a fill rate and a bucket depth "tokens that allocated for the source at beginning of the connection, token pool", col. 6, lines 16-54), the method comprising handling packets destined for the subscriber that arrive at the regulator in accordance with the token bucket configuration for the token bucket associated with the subscriber (col. 6, lines 16-54); measuring a demand placed on the packet communication network by the subscriber (col. 6, line 55 to col. 7, line 15); and dynamically adjusting the token bucket configuration for the token bucket associated with the subscriber based on the demand to affect the way that packets arriving at the regulator are handled (Col. 7, lines 4-36, adjusting token generation rate based on the

Art Unit: 2616

demand in order to handle the arrival of packets at the regulator). However, Fichou fails to disclose the token bucket determining conformance of network traffic destined for the subscriber to allow action to be taken in a presence of non-conforming network traffic. In the same field of endeavor, Bashandy discloses a token bucket determining conformance of network traffic destined for the subscriber to allow action to be taken in a presence of non-conforming network traffic (Fig 4, each stream of packets belong to a token bucket having filling rate, bucket size, including determining if the packet is conformance “in-profile” or non-conformance “out-profile”, if the packet is out-profile, then performing an action such as dropped, marked etc..., See Col. 9, lines 35 to col. 10, lines 16 and col. 10, lines 49-56).

Since, a method and system for determining if the packet is in-profile or out-profile is well known and expected in the art at the time of invention was made. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for determining conformance of network traffic destined for the subscriber to allow action to be taken in a presence of non-conforming network traffic as disclosed by Bashandy into the teaching of Fichou. The motivation would have been to improve throughput of the system and prevent global congestion.

Regarding claims 2-4 and 30-32, Bashandy teaches handling packets that arrive at the regulator based on a current number of tokens present in the token bucket and a particular packet that arrives at the regulator in a normal fashion (Col. 10, lines 49-57) when the current number of tokens present in the token bucket is sufficient, otherwise, handling the particular packet that arrives at the regulator in a special fashion such dropping the packet (Col. 10, lines 49-57).

Art Unit: 2616

5. Claims 9-10, 13, 37-38 and 41 rejected under 35 U.S.C. 103(a) as being unpatentable over Fichou and Bashandy in view of Shorey (USP 6829649).

Regarding claims 9 and 37, Fichou and Bashandy fail to disclose the claimed invention, However, Shorey teaches measuring the demand further comprises monitoring the number of tokens present in the token bucket (Fig 3, Ref 340). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply the teaching of Shorey into the teaching of Fichou and Bashandy. The motivation would have been to maintain efficiency of the network.

Regarding claims 10 and 38, Shorey teaches measuring the demand further comprises determining a burst demand based on observations made while monitoring the number of tokens present in the token bucket over a period of time (FIG 3, measuring packet size and monitoring token value).

Regarding claims 13 and 41, Shorey teaches dynamically adjusting further comprises modifying the bucket depth (Fig 3, Ref 620). 17, 20, 45 and 48

6. Claims 5-8, 14-17, 20, 33-36, 42-45 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fichou and Bashandy as applied to claims 1 and 29 above, and further view of Wang et al. (USP 6,748,435).

Regarding claims 5 and 33, Fichou and Bashandy fail specifically teaches that the special fashion of packet handling is to assign a classification to the packet. However, Wang teaches assigning classification (remark color) to the packet (Fig. 5 and 6; col. 5 lines 19-33). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include that the special fashion of packet handling is to assign a classification to the

Art Unit: 2616

packet as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 6 and 34, Fichou and Bashandy fail specifically teaches that handling packets further comprises handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present. However, Wang teaches handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present (fig. 6; col. 5 lines 48-59). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 7 and 35, Fichou and Bashandy fail specifically teaches that the assigning of the classification takes place in accordance with a predetermined relationship between number of tokens present in the token bucket and appropriate classification. However, Wang teaches the assigning of the classification takes place in accordance with a predetermined relationship between number of tokens present in the token bucket and appropriate classification (fig. 6; col. 5 lines 48-59 and 60-67; col. 6 lines 1-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include the assigning of the classification takes place in accordance with a predetermined relationship between number

Art Unit: 2616

of tokens present in the token bucket and appropriate classification as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 8 and 36, Fichou and Bashandy fail specifically teaches the assigning of the classification takes place in accordance with a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket. However, Wang teaches the assigning of the classification takes place in accordance with a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket (“demotion probability”, col. 6 lines 1-22; “promotion probability”, col. 6, lines 23-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include the assigning of the classification takes place in accordance with a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 14 and 42, Fichou and Bashandy fail specifically teaches handling packets further comprises handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens present; and wherein dynamically adjusting further comprises modifying the policy to which the assigning of the classification conforms. However, Wang teaches handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens



Art Unit: 2616

present (fig. 6; col. 5 lines 48-59); and wherein dynamically adjusting further comprises: modifying the policy to which the assigning of the classification conforms (col. 5 lines 60-67; col. 6 lines 1-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include handling packets further comprises: handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens present; and wherein dynamically adjusting further comprises: modifying the policy to which the assigning of the classification conforms as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 15 and 43, Fichou and Bashandy fail specifically teaches the policy to which the assigning of the classification conforms is based on a predetermined relationship between number of tokens present in the token bucket and appropriate classification. However, Wang teaches assigning of the classification conforms is based on a predetermined relationship between number of tokens present in the token bucket and appropriate classification (fig. 6; col. 5 lines 48-59 and 60-67; col. 6 lines 1-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include assigning of the classification conforms is based on a predetermined relationship between number of tokens present in the token bucket and appropriate classification as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 16 and 44, Fichou and Bashandy fail specifically teaches the policy to which the assigning of the classification conforms is based on a probability mass function that

Art Unit: 2616

determines the probability mass for each classification based on number of tokens present in the token bucket. However, Wang teaches assigning of the classification conforms is based on a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket (“demotion probability”, col. 6 lines 1-22; “promotion probability”, col.6 23-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include the assigning of the conforms is based on a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket as taught by Wang et al. in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Regarding claims 17 and 45, Fichou and Bashandy disclose the limitation of claims 1 and 29. However, Fichou and Bashandy do not specifically teaches that handling packets further comprises handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present. However, Wang teaches handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present (fig. 6; col. 5 lines 48-59).

Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present as taught by Wang et al in the assembly of Fichou and Bashandy in order to improve the performance of assured traffic.

Art Unit: 2616

Regarding claims 20 and 48, Wang teaches that modifying the policy to which the assigning of the classification conforms (col. 5 lines 60-67; col. 6 lines 1-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include modifying the policy to which the assigning of the classification conforms as taught by Wang et al. in the assembly of Fichou in order to improve the performance of assured traffic.

7. Claims 18-19 and 46-47 rejected under 35 U.S.C. 103(a) as being unpatentable over Fichou, Bashandy and Wang as applied to claims 17 and 45 above, and further in view of Shorey.

Regarding claims 18 and 46, these claims are similar to claims 10 and 38. Therefore, these claims are rejected under similar rationale. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a teaching of Shorey into the teaching of Fichou, Bashandy and Wang. The motivation would have been to maintain efficiency of the network.

Regarding claims 19 and 47, these claims are similar to claims 13 and 41. Therefore, these claims are rejected under similar rationale.

8. Claims 23-27 and 51-55 rejected under 35 U.S.C. 103(a) as being unpatentable over Shorey in view of Jeffries (US 20040062259).

Regarding claims 23-27 and 51-55, Shorey teaches a method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the method comprising:

Art Unit: 2616

handling packets that arrive at the regulator in accordance with the token bucket configuration (Fig 2, 4 and 6, col. 6, lines 17-40), wherein the token bucket uses tokens to regulate the packet flow by removing tokens from the token bucket when handling packets (Fig 3, Ref 390). Shorey does not specifically teaches that the amount of tokens to be removed being based on the amount of the flow in terms data, packet and being further based on a multiplier that is classification of the flow. However, Jeffries teaches that the amount of tokens to be removed being based on the amount of the flow and being further based on a classification of the flow (page 1, Sec 3).

Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include the amount of tokens to be removed being based on the amount of the flow and being further based on a classification of the flow as taught by Jeffries into Shorey in order to obtain additional control and improve the performance of assured traffic because Shorey suggests the flows comprising classes.

9. Claims 28 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeffries and Shorey as applied to claims 23 and 51 above, and further view of Fichou.

Jeffries and Shorey fail to disclose the claimed invention. However, in the same field of endeavor, Fichou discloses measuring a demand placed on the packet communication network by the subscriber (col. 6, line 55 to col. 7, line 15); and dynamically adjusting the token bucket configurations for the subscriber based on the demand (Col. 7, lines 4-36, adjusting token generation rate based on the demand in order to handle the arrival of packets at the regulator).

Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include a method and system for adjusting the token bucket

Art Unit: 2616

configuration based on the user demand as disclosed by Fichou into the system of Jeffries and Shorey. The motivation would have been to improve throughput of the system.

***Allowable Subject Matter***

10. Claims 11-12, 22, 39-40 and 50 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

11. Applicant's arguments filed 8/28/06 have been fully considered but they are not persuasive.

In response to page 15, the applicant states that Thomas does not disclose packet flow is regulated in terms of packet rate and data rate by first and second token buckets. In reply, Thomas clearly discloses a received packet is handled by peak data rate and sustained rate or burst size of packet of the first token and second token buckets as set forth in the office action.

In response to page 17, the applicant states that Shorey and Jeffries do not disclose removing tokens from token bucket when handling packets, the amount of tokens to be removed being based on the amount of flow and being further based on a classification of the flow. In reply, Shorey discloses a buffer for storing the flows, and token buckets have the token values for the classes of traffic and the token bucket remove to token value by minus token value with packet size of flow. Jeffries discloses a token bucket associated with flow which is assigned a classification such as class of service. Removing the token value if the classification of packet of

Art Unit: 2616

the flow (Page 1, Sec 0003). So it clearly, Jeffries defined token value is belong to a flow and a classification "class of service".

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

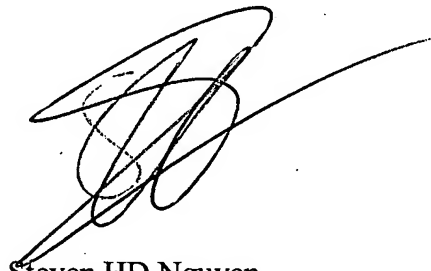
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'SHN', with a long horizontal line extending to the right.

Steven HD Nguyen  
Primary Examiner  
Art Unit 2616  
November 9, 2006